
ANSIBLE

Introduction

1. Definition?
2. What is the use of Ansible?
3. Working requirements?

NOTE

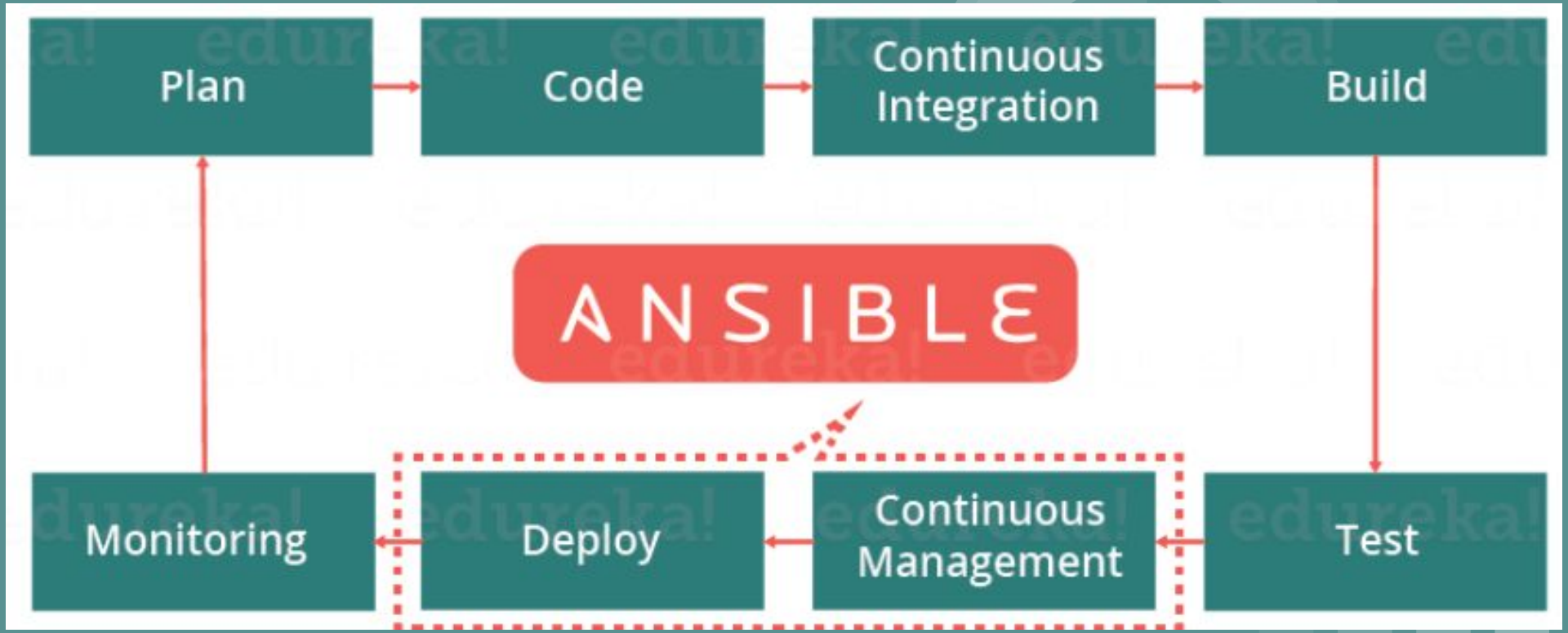
Agentless means that ansible does not install software on the nodes that it manages.
This removes a potential point of failure and security vulnerability and simultaneously saves system resources.

1. Ansible is an open-source orchestration and automation tool used for software provisioning, configuration management, and application deployment.

2. Ansible is used to provision the underlying infrastructure of your environment, virtualized hosts and hypervisors, network devices, and BMS.

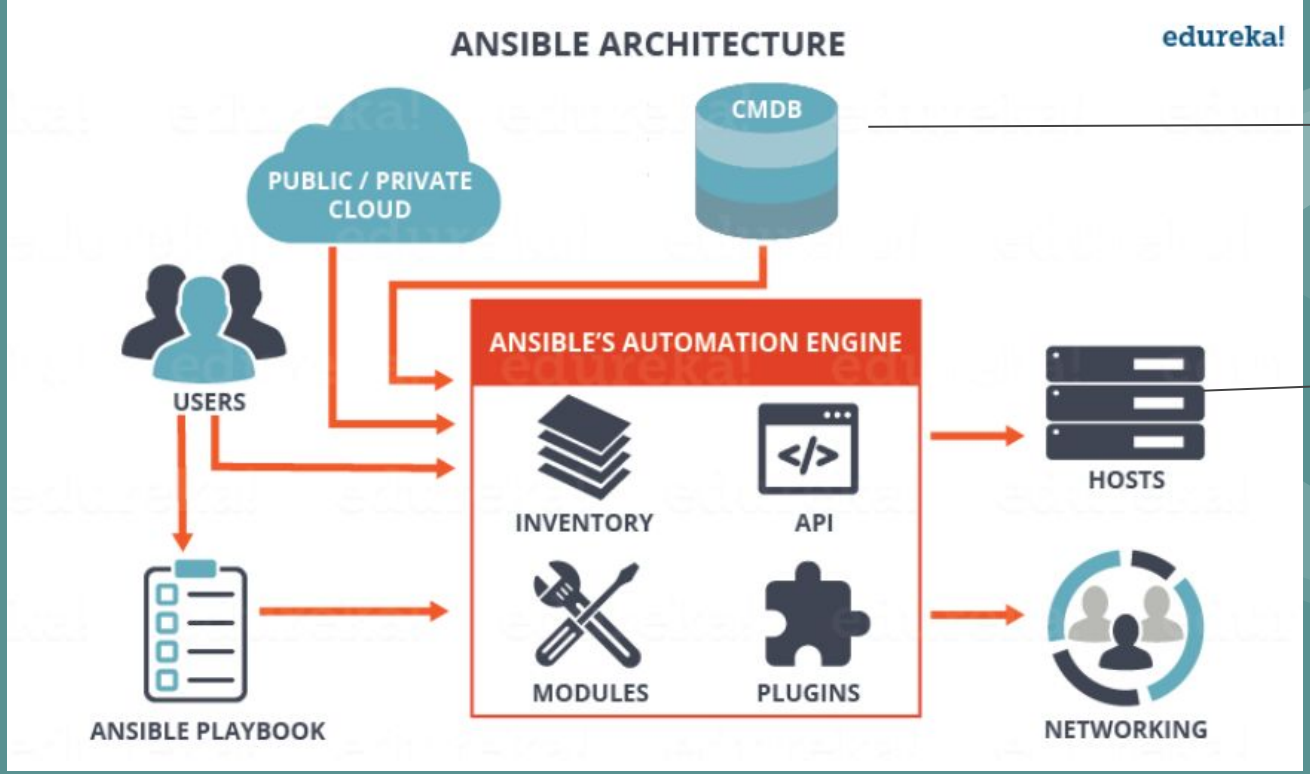
3. Ansible is completely agentless which means Ansible works by connecting your nodes through ssh. For other connecting methods we can use kerberos.

Ansible in DevOps?



Task of Ansible?

Tool for task automation.



CMDB is a repository that acts as a data warehouse for IT installations.

They are the Node system which are being automated by ansible. They can be linux, windows etc.

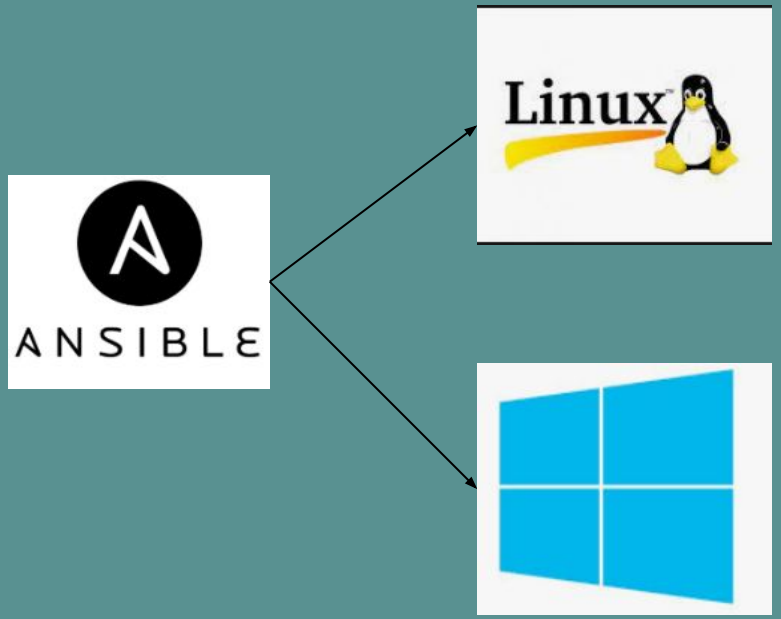
As we can see, the engine has direct interaction with users who write playbook to execute the ansible engine. Engine also interacts with cloud services and configuration management database(CMDB).

Basic Ansible Term

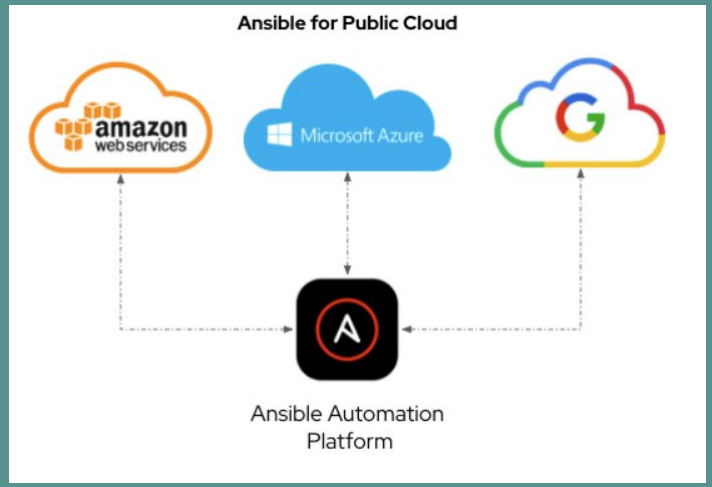
- Controller Machine: The machine where ansible is installed, responsible for running and supplying on the server you are managing.
- Inventory: An initialization file that contains information about the servers you are managing.
- Playbook: Entrypoint for Ansible provisioning, where the automation is defined.
- Module: Ansible has a multitude of built-in modules, and we can also create custom modules. They perform specific task.
- Role: A pre-defined way for organizing playbooks and other files in order to facilitate sharing and reusing.
- Play: A provisioning executed from start to finish is called a play.
  Or
  Execution of playbook is called a play.
- Facts: Global variable containing information about the system, like OS or network interface.

Benefits

1. We can use ansible in windows and unix-like OS, providing infrastructure as a code.

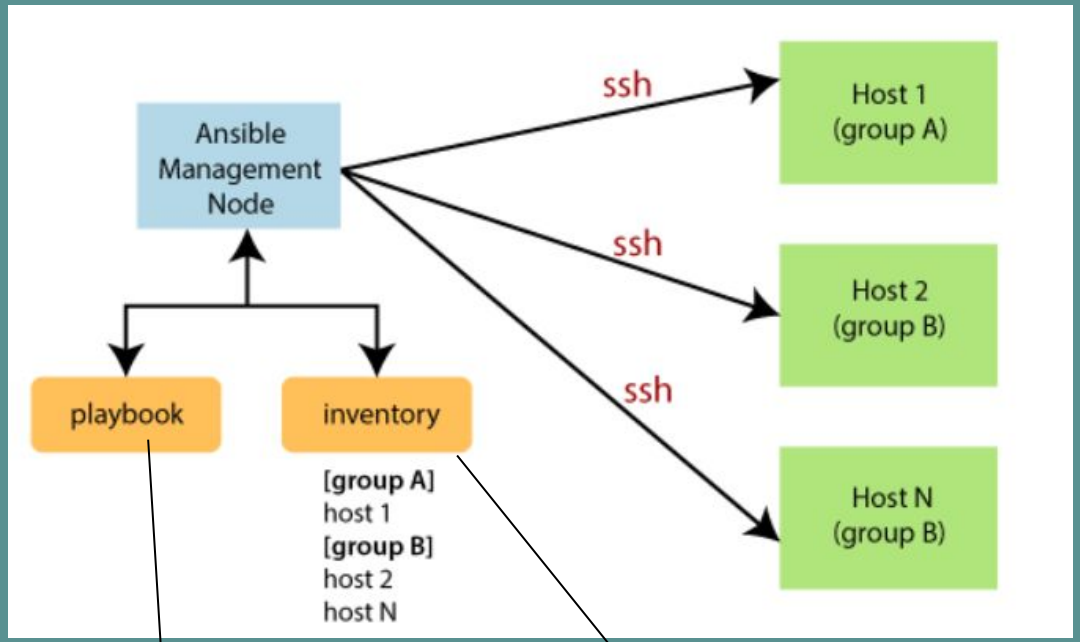


2. We can connect ansible with cloud



3. Very secure due to agentless abilities and use of OpenSSH security.

Working



- Ansible work by connecting to nodes and pushing out a small program called Ansible modules to the nodes.

NOTE: Host defined in the playbook should be defined in the inventory otherwise it's not going to run.

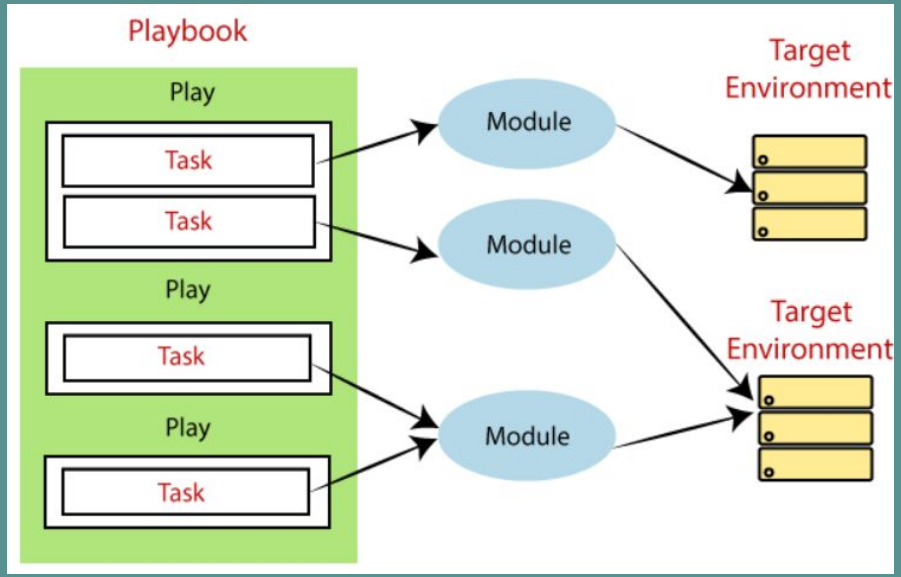
Playbook is composed of modules.

It contains the list of hosts where ansible modules needs to run.

Ansible Playbook

- Playbooks are the file where ansible code is written and they are written in YAML format.
- Playbooks tell ansible what to execute, i.e. they are like to-do list for ansible.
- Each playbook is an aggregation of one or more plays in it. Playbooks are structured using plays and we can have more than one play inside a playbook.
- We prefer to use notepad++ as the YAML editors.

FORMAT FOR PLAYBOOK



Function of play is to map set of instructions which is defined against a particular host.

YAML Tags

1. name
2. hosts
3. vars
4. Tasks

As in = which means

```
---
   name: install and configure DB
   hosts: testServer
   become: yes

   vars:
      oracle_db_port_value : 1521

   tasks:
   -name: Install the Oracle DB
      yum: <code to install the DB>

   -name: Ensure the installed service is enabled and running
   service:
      name: <your service name>
```

1. The name tag specifies the name of the Ansible playbook. As in what this playbook will be doing.

2. The tag specifies the lists of hosts. The host field is mandatory. It tells ansible on which hosts to run the listed task. One can run task on multiple machines and hence hosts tag can have a group of hosts entry as well.

3. Vars tag lets you define the variables which you can use in you playbook.

4. All the playbooks should contain tasks to be executed. Tasks field contains the name of the task.

Execute Ansible-Playbook on Jenkins

1. Use shell/bash script

The playbook execution is defined in the Build>Execute Shell section of job.

2. Use the ansible plugin

For jenkins pipeline we need to install the ansible plugin.